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JUN 1 1968

CURRENT SERIAL RECORDS

WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

AS OF
JAN. 1, 1968

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 Federal Office Building, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

D. A. WILLIAMS
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

|||||

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Bozeman, Montana

In Cooperation with

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DIRECTOR
Montana Agricultural Experiment Station

|||||

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MONTANA WATER SUPPLY OUTLOOK

January 1, 1968

* * * * *

*
* Snowfall in mountainous areas of Montana is *
* generally near to a little above average *
* west of the divide, and above average in the *
* Missouri and Yellowstone River drainages. *
*
* * * * *

Snow surveys made near the first of the year by many cooperating federal, state and private agencies indicate a good early season snow pack is accumulating. In addition, many areas received large amounts of snow soon after the measurement.

Along the Continental Divide, near Central Montana, snow pack is well above average. Around Bozeman the present mountain snow pack is about normal for mid-March.

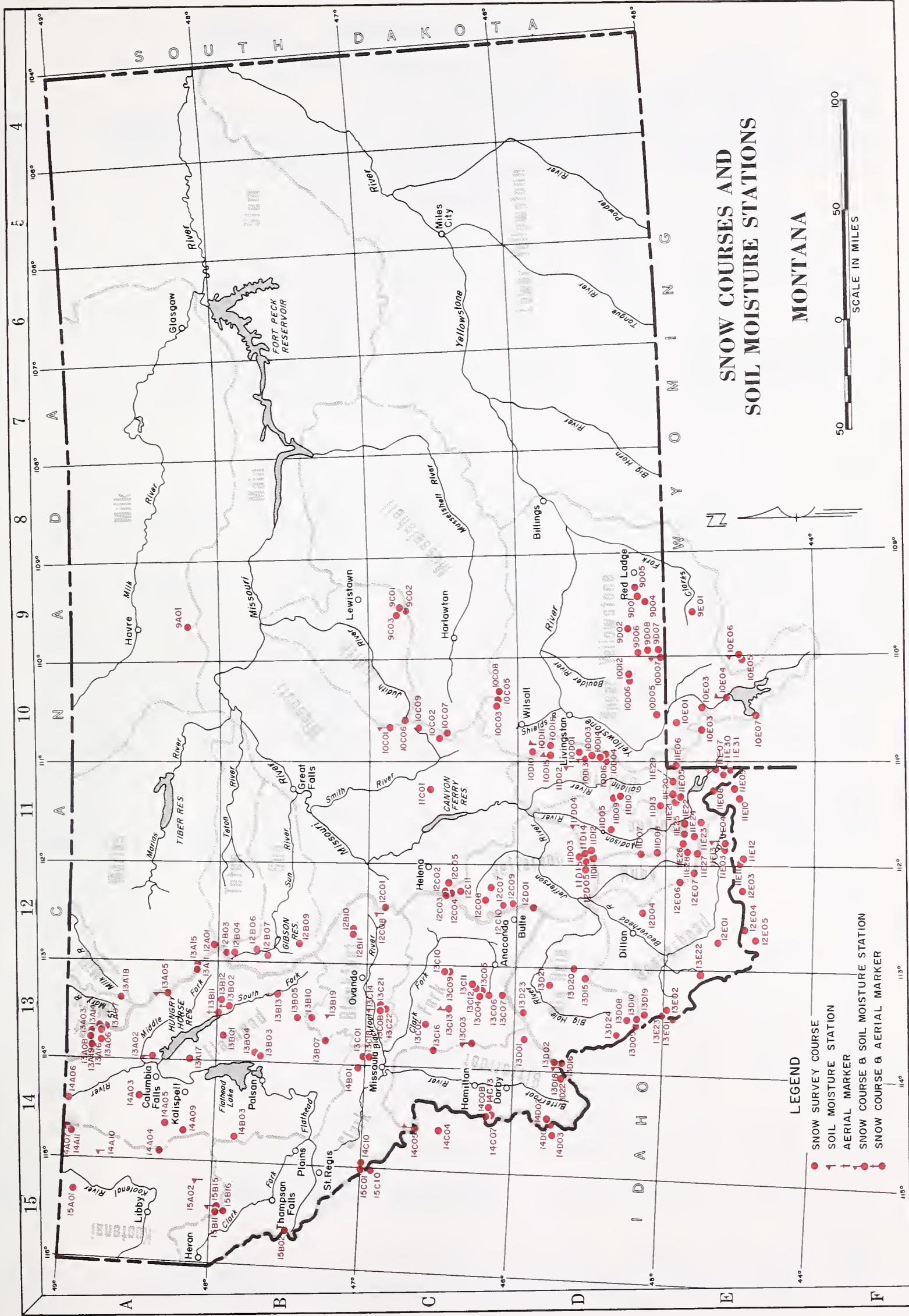
No surveys are made in the Kootenai River drainage. The snow pack in the Flathead drainage is about 75 percent of last year and 90 percent of the 1948-62 average.

The Clark Fork is 130 percent of last year and near average.

East of the Continental Divide, snow pack on the Missouri River headwaters averages a little above last year and average. Highest percentages are in the Red Rock and Gallatin drainages. Along the Central portion of the Continental Divide, snow is about 70 percent more than a year ago and 130 percent of the 15 year average. The Yellowstone River drainage is about the same as last year and 15 percent above average.

Moisture contained in the mountain soils is generally average or above, and together with the early season snows will provide good late season streamflow.

Irrigation reservoir storage is generally favorable for this time of year.



INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

SNOW COURSES

Drainage Basin & Course Name	Number	Elev.	Sec.	Typ.	Range	Record Began	Measuring Dates $\frac{1}{2}$	Meas. By $\frac{1}{2}$
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COLUMBIA RIVER BASIN

KOOTENAI RIVER

Barce Creek	15811	5500	36	26N	31W	1956	3,4,5,5 $\frac{1}{2}$,6	2
Barce Midway	15816	4600	31	26N	30W	1965	3,4,5,5 $\frac{1}{2}$,6	2
Barce Trail	15815	3800	5	25N	30W	1965	3,4,5,5 $\frac{1}{2}$,6	2
Brush Creek	14042	4000	12	26N	28W	1967	3,4,5,5 $\frac{1}{2}$,6	1,2
Braves Creek	13068	5000	12	26N	28W	1967	3,4,5,5 $\frac{1}{2}$,6	1,2
Red Mountain	14001	4000	1	26N	28W	1937	3,4,5,5 $\frac{1}{2}$,6	1,2
Wesol Divide	14007	5450	20	37N	24W	1937	3,4,5,5 $\frac{1}{2}$,6	1,2

FLATHEAD RIVER

Basco Peak	12803	5150	11	22N	25W	1961	3,4,5	1,5
Beaver Lake	13011	5900	31	23N	11W	1964	3,4,5	2
Big Creek	13803	6750	7	22N	18W	1941	3,4,5,6	1,5
Camp Misery	13017	6400	30	28N	13W	1962	3,4,5	1,5
Desert Mountain	13002	5600	24	31N	19W	1937	3,4,5	1,5
Fatty Creek	13804	5500	8	22N	18W	1962	3,4,5,6	1,5
Flatop Mountain	13804	5500	8	22N	18W	1962	3,4,5,6	1,5
Flatop Mountain Divide	14009	5100	11	28N	25W	1964	3,4,5	1,5
Gunsight Lake	13812	6300	35	26N	14W	1964	3,4,5	1,5
Hell Bearing Divide	14003	5770	32	32N	22W	1942	1,2,3,4,5,5 $\frac{1}{2}$,6	2
Helbrook	13813	4530	18	21N	13W	1951	1,2,3,4,5	1,2
Kishenehn	14006	3350	14	37N	22W	1954	3,4	6
Logan Creek	13005	4300	34	30N	24W	1937	1,2,3,4,5	1,2
Marias Pass	13005	5250	32	30N	14W	1934	1,2,3,4,5	3
Mineral Creek	13016	4000	29	35N	17W	1957	3,4,5	6
North Fork Jocko	13807	6330	3	17N	17W	1941	3,4,5,5 $\frac{1}{2}$,6	1,5
Spotted Bear Mountain	13802	7000	23	25N	15W	1948	1,2,3,4,5	1
Trinkus Lake	13801	6100	9	25N	17W	1948	1,2,3,4,5	1
Twin Creeks	13811	5800	24	26N	14W	1951	1,2,3,4,5	1
Upper Holland Lake	13805	7000	23	20N	15W	1948	3,4,5	1

CLARK FORK RIVER

Black Pine	13013	7100	26	8N	15W	1959	1,2,3,4,5,5 $\frac{1}{2}$,6	1
Copper Creek	12810	5700	1	15N	9W	1962	3,4,5	1,2
Cotter Mine	12811	6250	2	15N	9W	1962	3,4,5	1,2
Coyote Hill	13810	4200	12	18N	16W	1947	1,2,3,4,5	1,2
El Dorado Mine	13009	7800	23	8N	12W	1929	3,4	1
Flat Burr Pass	13011	6000	12	6N	13W	1957	3,4,5	1
Gold Creek Lake	13012	6000	12	6N	13W	1957	3,4,5	1
Hoodoo Basin	14010	4200	14	12N	27W	1949	3,4,5	1,2
Hoodoo Basin	15001	6000	17	12N	27W	1967	1,2,3,4,5,5 $\frac{1}{2}$,6	1,2
Hoodoo Creek	15001	5900	16	12N	27W	1967	1,2,3,4,5,5 $\frac{1}{2}$,6	1,2
Innersgard	13004	6450	6	5N	13W	1936	3,4,5	1,2
Lubrecht Forest No. 3	13021	5450	19	13N	14W	1951	1,2,3,4,5	8
Lubrecht Forest No. 4	13022	4650	23	13N	15W	1951	1,2,3,4,5	8
Lubrecht Forest No. 6	13028	4040	11	13N	15W	1951	1,2,3,4,5	8
Red Lion	13012	7100	22	6N	13W	1958	3,4,5	1
Skakaho Summit	13003	7260	30	6N	17W	1937	3,4,5,5 $\frac{1}{2}$,6	1
Slide Rock Mountain	13002	7100	35	10N	16W	1937	3,4,5	1
Southern Cross	13005	6900	8	5N	13W	1936	2,3,4	4
Spring Gulch	13018	6900	12	14N	17W	1961	1,2,3,4,5	8
Terra Hill	13006	6700	19	4N	13W	1939	3,4,5	1
Trinity Hill	13007	6700	19	4N	13W	1939	3,4,5	1
Stuart Mountain	13001	7100	16	14N	18W	1936	1,2,3,4,5,5 $\frac{1}{2}$,6	4
TV Mountain	14801	6800	33	15N	19W	1956	1,2,3,4,5,5 $\frac{1}{2}$,6	8

BITTERROOT RIVER

Ambras	13016	6480	28	9N	18W	1960	3,4,5	1
East Fork R.S.	13001	5100	16	2N	17W	1937	3,4	1
Gibbons Pass	13002	7100	4	2S	19W	1934	1,2,3,4,5,5 $\frac{1}{2}$,6	1,3
Lost Horse	14007	5940	5	4N	23W	1960	3,4,5,5 $\frac{1}{2}$,6	1
McCoy Camp	14002	5680	19	1S	23W	1937	3,4,5	1
Maria Pass	14001	6970	25	1S	24W	1937	3,4,5	1
Santa Maria	13002	7940	5	2S	19W	1965	3,4,5,5 $\frac{1}{2}$,6	1
Twin Lakes	14013	5600	34	5N	23W	1968	1,2,3,4,5,5 $\frac{1}{2}$,6	1
Twin Lakes	14008	6510	32	5N	23W	1960	3,4,5,5 $\frac{1}{2}$,6	1

ST. MARY RIVER BASIN

Hudson Bay Divide	13018	5800	24	32N	14W	1963	3,4,5	3
Innberg Lake No. 3	13003	5600	1	35N	17W	1922	3,4,5	3,9
Josephine Lower No. 9	13014	4900	22	35N	16W	1955	5	3,9
Mount Allen No. 7	13007	5700	27	35N	16W	1922	5	3,9
Plegan Pass No. 6	13005	5500	27	35N	16W	1922	5	3,9
Pearlman No. 8	13008	5800	36	36N	17W	1937	5	3,9

BEAVERHEAD RIVER

Bloody Dick	13010	7600	12	8S	16W	1948	3,4,5	1
Carr Creek	12904	7400	22	4S	7W	1963	2,3,4	1
Deer Creek Lake	13022	8400	24	12S	13W	1965	3,4,5	1
Elk Horn Springs	13015	7800	21	4S	12W	1935	3,4,5	3
Gold Stone	13009	8100	11	8S	16W	1948	3,4,5	10
Lakeview Canyon	11804	6930	26	14S	2W	1948	3,4,5	10
Lakeview Ridge	11803	7400	27	14S	2W	1948	3,4,5	10
Leah Pass	13001	7280	9	10S	15W	1948	3,4	1
Leah Pass	13003	8100	4	10S	15W	1948	3,4	1
Trail Creek	13002	8100	4	10S	15W	1948	3,4	1
White Pine Ridge	12201	8850	18	14S	9W	1948	3,4,5	1

MISSOURI RIVER BASIN

BEAVERHEAD RIVER

Bloody Dick	13010	7600	12	8S	16W	1948	3,4,5	1
Carr Creek	12904	7400	22	4S	7W	1963	2,3,4	1
Deer Creek Lake	13022	8400	24	12S	13W	1965	3,4,5	1
Elk Horn Springs	13015	7800	21	4S	12W	1935	3,4,5	3
Gold Stone	13009	8100	11	8S	16W	1948	3,4,5	10
Lakeview Canyon	11804	6930	26	14S	2W	1948	3,4,5	10
Lakeview Ridge	11803	7400	27	14S	2W	1948	3,4,5	10
Leah Pass	13001	7280	9	10S	15W	1948	3,4	1
Leah Pass	13003	8100	4	10S	15W	1948	3,4	1
Trail Creek	13002	8100	4	10S	15W	1948	3,4	1
White Pine Ridge	12201	8850	18	14S	9W	1948	3,4,5	1

SUN-TETON-MARIAS RIVERS

Badger Pass	13015	6900	4	27N	11W	1964	3,4,5	2
Beaver Creek	12806	5200	33	23N	10W	1949	3,4,5	1
Five-Ball	12809	5700	25	20N	10W	1948	3,4,5	1
Freight Creek	12801	6000	13	26N	10W	1948	3,4,5	3
Goat Mountain	12807	7000	20	22N	10W	1948	3,4,5	3
Wrong Creek	12804	5700	32	25N	10W	1949	3,4,5	2
Wrong Ridge	12803	6800	17	25N	10W	1949	3,4,5	2

JUDITH RIVER

Anaconda	9002	7100	24	12N	17E	1966	3,4,5	1
Crystal Lake	9001	6100	19	12N	18E	1941	3,4,5	1
Rock Creek	9003	5600	8	12N	18E	1966	3,4,5	1
Spur Fork	10005	8000	20	12N	9E	1963	1,2,3,4,5,5 $\frac{1}{2}$,6	1

UPPER YELLOWSTONE RIVER

Bald Ridge	10005	7500	11	4N	13E	1961	3,4,5	1
Camp Senia	10007	7950	2	9S	13E	1971	3,4,5	1
Good Station	10005	8400	19	9S	15E	1966	3,4,5,5 $\frac{1}{2}$,6	2
Grizzly Creek	10006	8400	22	9S	15E	1966	3,4,5	2
Grizzly Creek	9006	9100	11	9S	14E	1966	1,2,3,4,5,5 $\frac{1}{2}$,6	1,2
Independence	9005	8400	26	7S	19E	1961	1,2,3,4,5	1
Monument Peak	10006	8000	22	7S	12E	1940	3,4,5	1
Northeast Entrance	10012	9000	22	7S	12E	1961	3,4,5	1
Portcupine R.S.	10007	7400	33	9S	14E	1937	1,2,3,4,5,5 $\frac{1}{2}$,6	1,6
Saga-Jawee	10003	6500	10	4N	10E	1938	3,4,5	1
South Fork Shields	10008	8100	13	4N	10E	1965	3,4,5	1
Timberline Creek	9004	8850	13	8S	18E	1961	3,4,5	1
West Roosevelt	9002	7500	9	7S	16E	1960	3,4,5	4
White Hill	9008	8700	18	9S	15E	1967	3,4,5	2

FLATHEAD RIVER

Barce Trail	15816	4600	31	26N	30W	1965	3,4,5	2
Copper Creek	12810	5700	1	15N	9W	1962	3,4,5	1,2
Cotter Mine	12811	6250	2	15N	9W	1962	3,4,5	1,2
Coyote Hill	13810	4200	12	18N	16W	1947	1,2,3,4,5	1,2
El Dorado Mine	13009	7800	23	8N	12W	1929	3,4	1
Flat Burr Pass	13011	6000	12	6N	13W	1957	3,4,5	1
Gold Creek Lake	13012	6000	12	6N	13W	1957	3,4,5	1
Hoodoo Basin	14010	4200	14	12N	27W	1949	3,4,5	1,2
Hoodoo Basin	15001	6000	17	12N	27W	1967	1,2,3,4,5,5 $\frac{1}{2}$,6	1,2
Hoodoo Creek	15001	5900	16	12N	27W	1967	1,2,3,4,5,5 $\frac{1}{2}$,6	1,2
Innersgard	13004	6450	6	5N	13W	1936	3,4,5	1,2
Lubrecht Forest No. 3	13021	5450	19	13N	14W	1951	1,2,3,4,5	8
Lubrecht Forest No. 4	13022	4650	23	13N	15W	1951	1,2,3,4,5	8
Lubrecht Forest No. 6	13028	4040	11	13N	15W	1951	1,2,3,4,5	8
Red Lion	13012	7100	22	6N	13W	1958	3,4,5	1
Skakaho Summit	13003	7260	30	6N	17W	1937	3,4,5,5 $\frac{1}{2}$,6	1
Slide Rock Mountain	13002	7100	35	10N	16W	1937	3,4,5	1
Southern Cross	13005	6900	8	5N	13W	1936	2,3,4	4
Spring Gulch	13018	6900	12	14N	17W	1961	1,2,3,4,5	8
Terra Hill	13006	6700	19	4N	13W	1939	3,4,5	1
Trinity Hill	13007	6700	19	4N	13W	1939	3,4,5	1
Stuart Mountain	13001	7100	16	14N	18W	1936	1,2,3,4,5,5 $\frac{1}{2}$,6	4
TV Mountain	14801	6800	33	15N	19W	1956	1,2,3,4,5,5 $\frac{1}{2}$,6	8

CLARK FORK RIVER

Black Pine	13013	7100	26	8N	1
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SNOW SURVEY DATA

AS OF JANUARY 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

FLATHEAD RIVER

13A02	Desert Mountain	5600	12/28	20	5.4	9.0	6.6*
14A03	Hell Roaring Divide	5770	12/29	41	11.6	17.7	-
13B13	Holbrook	4530	1/2	22	3.0A	4.4A	3.3*
13A05	Marias Pass	5250	12/27	26	6.7	7.4	8.0
13B02	Spotted Bear Mountain	7000	1/2	37	7.0A	8.0A	7.6*
13B11	Twin Creeks	3580	1/2	27	5.0A	6.6A	5.8*

CLARK FORK RIVER

13C13	Black Pine	7100	12/28	34	7.2	3.2	-
13C13	Black Pine Pillow	7100	12/28	SP	7.8	4.9	-
13B10	Coyote Hill	4200	12/29	16	3.0	4.0	5.0*
15C10	Hoodoo Basin	6000	1/3	76	21.4	18.3	-
15C10	Hoodoo Basin Pillow	6000	12/24	SP	17.6	18.7	-
15C01	Hoodoo Creek	5900	1/3	71	18.6	16.6	-
15B02	Lookout	5250	12/28	45	11.8	15.6	17.6*
13C21	Lubrecht Forest No. 3	5450	12/31	24	3.9	2.0	3.3*
13C22	Lubrecht Forest No. 4	4650	12/31	12	2.1	1.0	1.8*
13C08	Lubrecht Forest No. 6	4040	12/31	10	1.4	1.0	1.9*
13C18	Spring Gulch	6000	12/30	40	6.8	3.4	4.8*
13C07	Storm Lake	7780	12/28	44	9.1	3.5	6.1*
13C01	Stuart Mountain	7400	12/30	61	16.0	11.6	11.6*
14B01	TV Mountain	6800	1/1	39	7.2	5.9	7.2*

BITTERROOT RIVER

13D02	Gibbons Pass	7100	12/26	44	10.7	6.4	10.8*
14C07	Lost Horse	5940	12/27	51	13.6	-	-
13D16	Moose Creek	6200	12/28	36	6.2	6.4	-
13D22	Saddle Mountain	7940	12/26	53	13.9	-	-
13D22	Saddle Mountain Pillow	7900	12/26	SP	13.2	-	-
14C04	Savage Pass	6600	12/28	50	12.4	8.2	-
14C13	Twelvemile Creek	5600	12/27	30	8.3	-	-
14C13	Twelvemile Creek Pillow	5600	12/27	SP	6.5	-	-
14C08	Twin Lakes	6510	12/27	72	20.2	-	-
14C12	Twin Lakes Pillow	6400	12/27	SP	16.7	-	-

A - Aerial observation - water content estimated.
 SP - Snow pillow observation - water content only.

SNOW SURVEY DATA

AS OF JANUARY 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

MISSOURI RIVER BASIN

BEAVERHEAD RIVER

12E03	Camp Creek	6800	12/28	23	4.7	3.5	3.7
11E12	Kilgore	6200	12/27	24	5.1	4.0	4.3*
11E04	Lakeview Canyon	6930	1/3	28	6.3	5.5	-
11E03	Lakeview Ridge	7400	1/3	25	6.0	5.8	-

JEFFERSON RIVER

12D01	Pipestone Pass	7200	12/29	18	2.6	1.6	2.4*
12C11	Rocker Peak	8000	12/29	48	10.4	-	-
12C11	Rocker Peak Pillow	8000	12/29	SP	10.4	-	-

MADISON RIVER

11E09	Big Springs	6500	12/29	32	5.9	9.4	7.9
11E05	Hebgen Dam	6550	12/26	39	6.0	6.2	5.4
11E10	Island Park	6315	12/29	26	4.4	6.4	6.1
11E31	Madison Plateau Pillow	7750	12/19	SP	6.0	-	-
10E02	Norris Basin	7500	12/27	25	4.4	6.0	4.3*
11E08	Valley View	6500	12/29	37	8.0	7.6	5.5
11E07	West Yellowstone	6700	12/27	24	4.1	6.5	4.9
11E07	West Yellowstone Pillow	6700	12/28	SP	3.7	4.8	-

GALLATIN RIVER

10D14	Arch Falls	7350	1/2	42	9.7	3.8	-
10D15	Bridger Bowl Pillow	7250	12/28	SP	15.6	8.2	-
11E29	Carrot Basin Pillow	9000	12/19	SP	9.5	14.1	-
10D04	Devil's Slide	8100	1/2	73	17.7	6.6	-
10D03	Hood Meadow	6600	1/2	38	8.9	-	-
10D13	Lick Creek Pillow	6860	12/27	SP	6.8	3.4	-
10D18	Maynard Creek Pillow	6210	12/28	SP	8.8	4.4	-
10D16	Shower Falls Pillow	8100	1/2	SP	18.8	8.0	-
11E06	Twenty-One Mile	7150	12/27	35	7.4	10.3	8.0

SP - Snow pillow observation - water content only.

SNOW SURVEY DATA

AS OF JANUARY 1, 1968

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

MISSOURI RIVER (Main Stem)

12C05	Chessman Reservoir	6200	12/28	22	4.2	1.5	2.1
10C09	Deadman Creek	6450	12/26	27	5.2	-	-
10C09	Deadman Creek Pillow	6450	12/26	SP	4.3	-	-
9A01	Rocky Boy	4700	12/29	19	4.6	-	-
9A01	Rocky Boy Pillow	4700	12/29	SP	2.9	-	-
12C02	Ten Mile Lower	6600	12/26	25	4.2	3.0	3.4
12C03	Ten Mile Middle	6800	12/27	30	5.6	3.7	5.1
12C04	Ten Mile Upper	8000	12/27	38	8.4	4.8	6.3

JUDITH RIVER

10C06	Spur Park	8000	12/26	43	11.0	-	-
10C06	Spur Park Pillow	8000	12/26	SP	11.7	9.7	-

UPPER YELLOWSTONE

10E03	Canyon	7750	12/28	36	6.5	6.2	6.0
10E06	East Entrance	7000	12/29	17	1.7	2.3	4.4*
9D05	Grizzly Peak	8400	12/28	48	10.0	6.5	4.0*
10E04	Lake Camp	7850	12/28	20	2.6	3.9	4.0*
10D07	Northeast Entrance	7400	12/31	27	4.4	3.4	3.9
10E05	Sylvan Pass	7100	12/30	27	4.2	3.6	5.6*
10E07	Thumb Divide	7900	12/29	32	6.8	8.6	8.9*

SP - Snow pillow observation - water content only.

-5-

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SOIL MOISTURE DATA

AS OF NOVEMBER 1, 1967

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	**AVERAGE

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5	11/7	6.3	5.0	-
14A10M	Murphy Lake R.S.	3000	48	22.6	11/2	18.6	18.6	-
15A02M	Raven R.S.	3050	48	23.0	11/7	19.1	18.1	-

Flathead

13A02M	Desert Mountain	5600	54	8.4	11/2	8.1	6.8	6.1
13A05M	Marias Pass	5250	54	6.5	11/2	4.3	3.6	4.5

Clark Fork

13C13M	Black Pine	7100	48	10.0	10/27	6.7	8.0	-
13B19M	Seeley Lake R.S.	4030	48	11.9			3.9	-
13C03M	Skalkaho Summit	7260	48	10.8	10/31	10.4	9.9	-

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	10/30	5.6	5.1	5.6
14C05M	Lolo Pass	5250	48	10.6	11/1	9.7	2.8	5.2

MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3	11/1	5.6	5.7	5.9
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Madison

10D04M	Red Bluff	4800	40	4.7	11/1	3.1	-	2.4
11E07M	West Yellowstone	6700	48	6.5	10/28	2.8	2.9	-

Gallatin

10D15M	Bridger Bowl	7250	48	17.0	10/31	14.9	16.4	-
11D02M	College Site	4856	54	14.5	10/30	10.4	7.1	7.6
10D13M	Lick Creek	6860	48	18.8	10/30	18.3	18.3	-
11E06M	Twenty-One Mile	7150	48	10.0	10/28	5.0	3.0	3.4

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	10/27	6.7	5.7	7.9
13C08M	Stemple Pass	6350	48	5.9	10/30	4.2	3.6	4.1

Yellowstone

10D11M	Battle Ridge	6020	48	17.6	10/27	13.8	8.8	11.0
10D07M	Northeast Entrance	7350	48	9.4	10/27	6.8	5.7	6.8

SOIL MOISTURE DATA

AS OF DECEMBER 1, 1967

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	**AVERAGE

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5	12/5	6.7	6.9	-
14A10M	Murphy Lake R.S.	3000	48	22.6	12/1	19.5	19.4	-
15A02M	Raven R.S.	3050	48	23.0	12/5	19.4	21.1	-

Flathead

13A02M	Desert Mountain	5600	54	8.4			-	-
13A05M	Marias Pass	5250	54	6.5	12/1	4.3	4.3	4.8

Clark Fork

13C13M	Black Pine	7100	48	10.0	11/29	8.6	8.0	-
13B19M	Seeley Lake R.S.	4030	48	11.9	12/4	5.4	5.6	5.3
13C03M	Skalkaho Summit	7260	48	10.8			-	-

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	12/1	5.9	5.0	5.4
14C05M	Lolo Pass	5250	48	10.6	12/1	10.4	3.2	5.7

MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3			7.0	6.7
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Madison

10D04M	Red Bluff	4800	40	4.7	12/4	2.1	2.0	2.0
11E07M	West Yellowstone	6700	48	6.5	11/28	2.7	3.4	-

Gallatin

10D15M	Bridger Bowl	7250	48	17.0	12/1	13.6	16.4	-
11D02M	College Site	4856	54	14.5	12/1	12.5	9.9	9.0
10D13M	Lick Creek	6860	48	18.8	11/30	17.5	18.2	-
11E06M	Twenty-One Mile	7150	48	10.0	11/28	4.3	2.8	2.7

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	12/1	6.8	5.6	7.6
13C08M	Stemple Pass	6350	48	5.9	11/30	4.2	3.7	4.1

Yellowstone

10D11M	Battle Ridge	6020	48	17.6	12/1	14.4	11.1	12.0
10D07M	Northeast Entrance	7350	48	9.4	11/30	6.7	5.7	7.0

SOIL MOISTURE DATA

AS OF JANUARY 1, 1968

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	** AVERAGE

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5			-	-
14A10M	Murphy Lake R.S.	3000	48	22.6	1/3	19.5	20.3	-
15A02M	Raven R.S.	3050	48	23.0	1/5	20.0	21.2	-

Flathead

13A02M	Desert Mountain	5600	54	8.4	12/28	6.6	8.0	6.8
13A05M	Marias Pass	5250	54	6.5	12/31	4.7	4.9	4.8

Clark Fork

13C13M	Black Pine	7100	48	10.0	12/28	8.8	7.9	-
13B19M	Seeley Lake R.S.	4030	48	11.9	12/29	4.7	9.3	6.9
13C03M	Skalkaho Summit	7260	48	10.8			-	-

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	12/26	5.7	4.9	5.3
14C05M	Lolo Pass	5250	48	10.6	1/2	10.2	3.5	5.8

MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3	1/2	5.3	6.5	7.6
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Madison

10D04M	Red Bluff	4800	40	4.7	1/5	1.5	1.8	2.0
11E07M	West Yellowstone	6700	48	6.5	12/28	2.3	2.8	-

Gallatin

10D15M	Bridger Bowl	7250	48	17.0	12/28	14.8	16.1	-
11D02M	College Site	4856	54	14.5	12/29	9.4	10.3	9.1
10D13M	Lick Creek	6860	48	18.8	12/27	17.7	18.4	-
11E06M	Twenty-One Mile	7150	48	10.0	12/28	3.0	2.6	2.8

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	12/29	6.0	5.2	7.5
13C08M	Stemple Pass	6350	48	5.9	12/27	4.1	3.7	4.1

Yellowstone

10D11M	Battle Ridge	6020	48	17.6	12/28	12.8	11.0	12.2
10D07M	Northeast Entrance	7350	48	9.4	12/31	5.6	5.6	6.9

RESERVOIR STORAGE DATA

AS OF DECEMBER 31, 1967

(1000 Acre Feet)

			USEABLE STORAGE			
BASIN	RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVERAGE	
COLUMBIA RIVER BASIN						
Flathead	Hungry Horse	3,428.0	2,457.0	2,012.0	2,954.5**	
	Flathead Lake	1,791.0	1,473.0	1,578.0	1,297.0	
	Camas (Sum of 4)	45.2	21.7	22.6	30.7	
	Mission Valley (Sum of 8)	100.3	19.7	23.0	29.4	
Clark Fork	Georgetown Lake	31.0	29.2	23.1	25.9	
	Noxon Rapids	334.6	316.4	311.8	-	
Bitterroot	Como	34.9	12.9	3.1	8.8	
	Painted Rocks	31.7		14.9	15.1**	
MISSOURI RIVER BASIN						
Beaverhead	Clark Canyon	328.9	-	94.3	-	
	Lima	84.0	40.6	13.8	25.6	
Ruby	Ruby	38.8		-	15.7**	
Madison	Hebgen Lake	377.5	237.0	169.2	188.0	
	Ennis Lake	41.0	34.6	38.9	36.9	
Gallatin	Middle Creek	8.0	3.1	2.1	3.0**	
Missouri	Canyon Ferry	2,043.0	1,810.0	1,460.0	1,628.5**	
	Hauser & Helena	61.9	56.8	63.0	55.3	
	Lake Helena	10.4	8.6	10.9	8.3	
	Holter Lake	81.9	79.6	81.9	71.2	
	Smith River	10.7	7.5	-	5.0**	
	Ackley Lake	5.8	-	-	3.6	
	Durand	7.0	4.4	-	3.7**	
	Martinsdale	23.1	9.8	-	7.6**	
	Deadman's Basin	72.2	59.0	-	40.5**	
	Fort Peck	19,410.0	16,310.0	17,280.0	10,661.1	
	Sun	Gibson	105.0	29.4	16.8	52.5
		Willow Creek	32.3	15.1	16.0	18.8
		Pishkun	32.0	16.8	16.2	18.8
	Marias	Lower Two Medicine			-	0.3
Four Horns		19.2		11.9	10.5	
Swift		30.0	6.3	-	17.4	
Lake Frances		112.0	70.7	71.0	91.9	
Tiber		1,347.0	469.1	498.6	524.4**	
Milk	Fresno	127.2	70.3	84.0	61.9	
	Nelson	66.8	42.9	52.6	38.4	
	Lake Sherburne	66.1	20.2	-	17.1	
Yellowstone	Mystic Lake	20.8	16.7	13.6	13.9	
	Tongue River	68.0	26.6	28.2	11.5	
	Cooney	27.5	18.0	16.0	10.5**	
Big Horn	Yellowtail	1,356.0	941.7	647.7	-	

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). -9- **AVERAGE FOR PERIOD OF RECORD

Agencies and Organizations Cooperating in Montana Snow Surveys

U. S. Forest Service
Region I, Missoula, Montana
Montana Forests and Ranger
Districts

U. S. Geological Survey
Helena, Montana
Portland, Oregon

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Walla Walla, Washington
Omaha, Nebraska

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana
Portland, Oregon
Kansas City, Missouri

U. S. Bureau of Sports Fisheries
and Wildlife
Red Rock Lakes Refuge
Mojave, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

U. S. Bonneville Power Administration
Portland, Oregon

U. S. Soil Conservation Service
Montana, Wyoming, Idaho

Soil and Water Conservation Districts
Montana Counties

U. S. National Park Service
Yellowstone National Park
Glacier National Park

Montana Power Company
Butte, Montana

Montana Water Resources Board
Helena, Montana

North Montana Branch Station
Agricultural Experiment Station
Havre, Montana

Montana State University
Agricultural Experiment Station
Bozeman, Montana

University of Montana
School of Forestry
Missoula, Montana

Water Rights Branch, Dept. of
Lands and Forests
Victoria, British Columbia

Department of Energy, Mines and
Resources
Calgary, Alberta

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